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POLLUTION OF HARVEYS LAKE

Public Health Service
Charlottesville, Virginia

April 1965

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SUMMARY REPORT

POLLUTION OF HARVEYS LAKE

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Region III
Public Health Service
Division of Water Supply and Pollution Control
Chesapeake Bay-Susquehanna River Basins Project
Charlottesville, Virginia

April 1965

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INTRODUCTION

In response to the request of Congressman Daniel J. Flood on February 1, 1965, the Public Health Service has conducted a special study of pollution problems in the Harveys Lake area of Pennsylvania. This summary report was prepared in cooperation with the Pennsylvania Department of Health and local agencies and organizations, to present and evaluate all available information relating to water quality conditions in Harveys Lake.

SUMMARY AND CONCLUSIONS

1. Harveys Lake is located in Lake and Lehman Townships, Luzerne County, Pennsylvania, and has a surface area of approximately 658 acres.

2. Permanent residents in the immediate vicinity of Harveys Lake number about 650 persons. However, approximately 40,000 persons utilize the area during peak periods of the recreation season for boating, fishing, swimming, camping and aesthetic enjoyment.

3. About 1,000 cottages have been constructed around the Lake shoreline, but present land use indicates a lack of planning during development of the area. This lack of planning is illustrated by the sizes of lots; types of construction; and most critical, by the use of inadequate waste disposal facilities.

4. Geology of the area makes sub-surface waste disposal systems generally unsatisfactory, because shallow soils, bedrock, steep slopes, and a high ground water table make septic tanks and tile fields ineffective.

5. Surveys by the Pennsylvania Department of Health, which are incomplete at this time, indicate that at least 200 individual waste disposal systems are functioning unsatisfactorily. In some cases, direct raw waste discharges were found.

6. As the result of the findings of water quality and sanitary surveys, the Pennsylvania Department of Health closed

two beaches on Harveys Lake on July 24, 1964, in order to protect the public health. In addition, two beaches closed voluntarily.

RECOMMENDATIONS

1. The Pennsylvania Department of Health should continue its activities to locate and eliminate inadequately treated wastes now being discharged to Harveys Lake.

2. Because of the geology of the area, the only permanent solution to the pollution problem is the construction of a sewage collection system and a central waste treatment plant.

3. A professional engineer should be retained by the Lake property owners to determine sewerage system and waste treatment requirements, including estimated costs. To insure meeting the recreation potential of the area, immediate action should be taken to initiate a construction program based upon the engineer's recommendations.

4. Corrective action would be facilitated if property owners of the Harveys Lake area would form a borough, sanitary district, or other legally constituted political sub-division. This sub-division should have regulatory and taxation powers permitting control of water supply and waste disposal facilities, as well as land use within its boundaries.

5. State and/or local health departments need authority to control or regulate installation of waste disposal facilities for individual homes and small developments.

6. The State Department of Health should adopt and enforce more effective rules and regulations to control and regulate waste discharges from pleasure craft.

DESCRIPTION OF THE AREA

Physical Description

Harveys Lake is a natural body of water approximately 658 acres in size and located in northern Luzerne County, Pennsylvania. The majority of the Lake's peripheral area is located in Lake Township, with only the southeastern portion located in Lehman Township. The Lake is situated at the bottom of a steep-sided, glaciated valley and is surrounded by an irregular, narrow flood plain. Elevation of the Lake is 1,255 feet above sea level, with the relief of the surrounding area of Harveys Lake extending upward approximately 300 feet. Discharges from the Lake form the headwaters of Harveys Creek, which flows about 13.5 miles to enter the Susquehanna River at West Nanticoke, Pennsylvania.

Geology

The geological composition of the Harveys Lake area is primarily fractured bedrock, covered by a thin layer of glacial materials. In the vicinity of the Lake, these glacial materials consist of uniform textured silt and fine sand. The soils of the area are shallow, poorly drained, and generally unsuitable for sub-surface waste disposal.

Most of the water inflow to the Lake comes from ground water sources. Depth of the ground water table varys from about 2-3 feet near the Lake to more than 25 feet on the slopes. Water

reaches the Lake from the ground water table through the fractured bedrock.

Overflow or discharge from Harveys Lake is small during periods of drought; for example, little if any water reached Harveys Creek during the past two summers.

Ground water is used as the only source of water supply by the area residents because of its availability at shallow depths.

Water Uses

Water uses of Harveys Lake are entirely recreational; including boating, fishing, swimming, camping, and aesthetic enjoyment. Harveys Lake has developed as a small residential and major recreational area, because of its proximity to the Harrisburg and Scranton-Wilkes-Barre, Pennsylvania, metropolitan areas. About 1,000 cottages or residences have been constructed around the periphery of the Lake and along the Lake's tributaries. Permanent residents of the area number around 650; however, summer populations range as high as about 40,000 persons during peak weekends of the recreational season.

Land Use

Because of the bowl-like topography and limited land available, most of the houses are situated on extremely small lots on the narrow plain immediately adjacent to the Lake, with

additional structures built on the steep valley slopes. In many instances, water supply and sub-surface waste disposal facilities are actually located in close proximity to one another.

Economy

Harveys Lake activities contribute a substantial amount of income to the two adjoining townships in Luzerne County--Lake and Lehman Townships. This income stems from the commercial aspect of recreational facilities and is the principal means of support for the 650 permanent residents residing within the area.

THE PROBLEM

Origin of Wastes

There are approximately 1,000 houses and commercial establishments in the area which have individual waste disposal systems of varying effectiveness. Following a preliminary survey carried out by the Pennsylvania Department of Health, it was estimated that about 200 of the 1,000 systems are not providing satisfactory treatment. Wastes reach Harveys Lake through inadequate sub-surface disposal systems and through direct discharges of raw sewage to the Lake and its tributaries.

An unknown number of pleasure craft operate on the waters of the Lake. A portion of these craft have inboard toilet facilities which discharge raw human wastes into the Lake to add to an already serious pollution problem.

Effects of Inadequate Waste Disposal

Studies performed by the Pennsylvania Department of Health during the summer of 1964 indicated that most areas of Harveys Lake meet the Pennsylvania water quality standards for swimming. However, water quality in and adjacent to public bathing areas was found to be potentially unsafe for bodily contact. As a result of these findings, Sandy Bottom Beach and Old Sandy Bottom Beach were closed by the Health Department on July 24, 1964. In addition, the Girl Scout Beach and the Harveys Lake

Boat Club Beach voluntarily closed when informed of the potential health hazard.

In addition to the potential health hazard created by waste discharges to the Lake, continued utilization of sub-surface disposal systems in areas having a high ground water table could lead to contamination of the ground water supplies.

SOLUTIONS TO THE PROBLEM

Ultimate Solution

The ultimate solution to problems at Harveys Lake involves construction of a waste collection system and treatment at a waste treatment facility serving the entire area. This would require house connections, pumping stations, and a sewage treatment plant. Adequate sewerage and waste treatment will eliminate discharges of inadequately treated waste to the Lake and prevent contamination of ground water by seepage from sub-surface disposal systems.

The community should retain the services of a professional engineer to design the facilities and determine the optimum location of sewers, pumping stations, and the treatment plant. Design and installation of these waste treatment facilities will involve considerable expense. The community would possibly be eligible for grant monies for a portion of the expense (for example, the Construction Grants Program of the Public Health Service); however, much of the expense will fall on residents of the area. Organization of the community into a borough, sanitary district, or other legally constituted sub-division would be required for some grant procedures, and would simplify local participation in financing the balance of cost.

Temporary or Short-Term Solution

Since septic tanks are generally unsuitable for use as waste disposal systems in the Harveys Lake area,this approach as a temporary or short-term approach to pollution problems in the Lake is generally unsatisfactory. Other temporary measures such as chemical toilets, pit privies, holding tanks are primarily for emergency use and require considerable surveillance and maintenance. These measures may generate problems of their own, and may be aesthetically unsatisfactory to property owners.

With immediate action, the permanent solution (sewerage and treatment) can be effected for the area in a short period of time. A short-term solution would involve an expense in addition to the cost of sewerage and treatment, as well as having maintenance and aesthetic shortcomings. For these reasons, it is recommended that the ultimate solution be instituted as soon as possible, with the short-term approach used only in cases of emergency or dire necessity. Since discharges of raw or inadequately treated wastes should be eliminated immediately, temporary measures will probably be required for permanent residences with inadequate waste disposal systems.

ACTION TAKEN TO DATE

Pennsylvania Department of Health

Increased development of the Harveys Lake area and drought conditions caused degradation of Lake water quality to the point that on July 24, 1964, the Pennsylvania Department of Health found it necessary to close two public beaches in the interest of protecting public health. Closure was the result of high bacteriological counts in the vicinity of the bathing areas and evidence indicating unsatisfactory waste disposal practices. In addition to closing the public beaches, the Pennsylvania Department of Health provided news releases to inform the public of the potential health hazard of bodily contact activities in Harveys Lake.

The Health Department, in an effort to further identify the extent of the pollution problem and to locate the sources of pollution, initiated an intensive sampling program on July 28, 1964. Results of the program indicated concentrated bacteriological contamination in several areas of the Lake, with particularly heavy contamination in the tributaries to the Lake. The survey also found many direct discharges from home sewage facilities, as well as many inadequately functioning individual waste disposal systems.

Survey activities have been discontinued until about May 1965, because of the difficulty in obtaining access to vacated

properties. Following closing of the public beaches, many cottage owners locked their premises and left the area; therefore making it extremely difficult for the Health Department to complete its survey. The Health Department plans to continue its surveillance of water quality during the summer of 1965, to better define the water quality problem in Harveys Lake.

Using the policy and practices of controlling waste discharges from individual homes, as adopted by the Sanitary Water Board in November 1963, the State Department of Health has sent violation notices to individuals found discharging waste to Harveys Lake. The next action facing these individuals is an order to stop discharging wastes, with a 20-day period provided for a hearing. Unless evidence is presented at the hearing indicating action is unnecessary or should be deferred, the individual is ordered to cease discharge or provide a waste disposal system satisfactory to the Department of Health within six months.

In addition to the above described activities, the Health Department has met with local representatives to explain the problem. The Health Department suggested that the local people hire a professional engineer to develop a plan for providing adequate waste disposal facilities.

Legislative authority is needed for State and/or local health departments to control or regulate installation of waste disposal facilities for individual homes (especially septic tanks).

This would greatly reduce future problems stemming from inadequate private waste disposal systems installed in locations which develop into residential or recreational areas. To date, the Health Department has submitted proposed legislation to the State Legislature three times, with no action being taken. Legislation governing installation of private or individual waste disposal systems has been introduced again and is currently before the State Legislature.

The Pennsylvania Department of Health is presently drafting rules and regulations which, if adopted by the Sanitary Water Board, would provide a policy for the regulation of waste discharges from pleasure craft. These regulations would probably require that holding tanks or chemical toilets be installed on boats, with ultimate disposal to sewer systems located on shore.

Township Activities

As a result of the water quality problem within Harveys Lake, Lake and Lehman Townships have each obtained the services of a sanitarian. These individuals are presently being trained by staff of the State Department of Health Regional Office in Kingston, Pennsylvania.

Local Residents' Activities

Permanent residents living in the Harveys Lake area are presently attempting to establish a borough in order to have authority to regulate activities in the area, particularly installation of water supplies and waste disposal facilities.

Several meetings have been held by Harveys Lake residents regarding hiring an engineer to carry out a feasibility study and to prepare a plan for solving the water pollution problem. An engineering firm has been selected, with the study to be initiated as soon as funds become available. The study will cost an estimated $2,500.